

WHAT IS CLAIMED IS:

1. An antimicrobial composition for treating a quantity of animal litter, the composition comprising:
 - a preparation of at least one iron salt;
 - a citrate composition; and
 - a chitosan preparation.
2. The composition of claim 1, wherein the at least one iron salt comprises FeCl_3 .
3. The composition of claim 1, wherein the citrate composition comprises sodium citrate.
4. The composition of claim 1, wherein the chitosan preparation comprises low molecular weight chitosan.
5. The composition of claim 1, wherein the composition comprises an aqueous treatment solution comprising about 100 mM FeCl_3 , about 100 mM citrate, and about 0.1% chitosan.
6. The composition of claim 1, wherein the composition comprises an aqueous treatment solution comprising about 50 mM FeCl_3 , about 50 mM citrate, and about 0.05% chitosan.
7. The composition of claim 1, wherein the composition comprises a powdered preparation comprising about 46% (w/w) FeCl_3 , about 54% (w/w) citrate.
8. The composition of claim 1, further comprising an iodophore.
9. The composition of claim 8, wherein the iodophore comprises a povidone-iodine complex.
10. A method for preparing antimicrobial animal litter, the method comprising:
 - a) providing a first quantity of animal litter;
 - b) providing the composition of claim 1; and
 - c) exposing the first quantity of animal litter to the composition of claim 1, thereby preparing an antimicrobial animal litter.
11. The method of claim 10, wherein providing the first quantity of animal litter comprises providing one or more litter components selected from the group consisting of rice hulls, straw, corn husks, clay, diatomaceous earth; sawdust; wood chips, wood shavings, recycled paper products; agricultural waste materials, and gravel.

12. The method of claim 10, wherein providing the composition of claim 1 comprises providing a powdered treatment preparation comprising about 45% FeCl_3 , about 54% citrate, and about 0.001% chitosan; and wherein exposing the first quantity of animal litter to the composition comprised coating the animal litter with the powdered treatment composition.
13. The method of claim 10, wherein providing the composition of claim 1 comprises providing an aqueous treatment preparation and wherein exposing the first quantity of animal litter comprises soaking the animal litter in the aqueous treatment solution.
14. The method of claim 10, wherein providing the composition of claim 1 comprises providing an aqueous treatment preparation and wherein exposing the first quantity of animal litter comprises spraying the animal litter with the aqueous treatment solution.
15. The method of claim 10, wherein providing the composition of claim 1 comprises preparing an aqueous treatment solution of about 100 mM FeCl_3 , about 100 mM citrate, and about 0.1% chitosan.
16. The method of claim 15, wherein preparing the aqueous solution further comprises suspending the chitosan in an organic acid prior to combining the chitosan with the FeCl_3 and citrate.
17. The method of claim 16, wherein the organic acid comprises one or more of citric acid, acetic acid, or lactic acid.
18. The method of claim 10, wherein providing the composition of claim 1 comprises preparing an aqueous treatment solution of about 50 mM FeCl_3 , about 50 mM citrate, and about 0.05% chitosan.
19. The method of claim 10, wherein exposing the first quantity of animal litter to the treatment solution further comprises removing an unabsorbed portion of the treatment solution from the animal litter.
20. The method of claim 10, further comprising:
combining a second quantity of animal litter with the treated animal litter, wherein the second quantity of animal litter is about equal to the first quantity of animal litter.
21. A treated animal litter composition prepared by the method of claim 10.
22. The composition of claim 21, wherein the animal litter comprises one or more components selected from the group consisting of rice hulls, straw, corn husks, clay,

diatomaceous earth; sawdust; wood chips, wood shavings, recycled paper products; agricultural waste materials, and gravel.

23. The composition of claim 21, wherein the animal litter comprises chicken litter.

24. The composition of claim 21, wherein the composition further comprises a second quantity of animal litter, wherein the second quantity of animal litter is about equal to the first quantity of animal litter.

25. A method for reducing the microbial population in an animal containment area, the method comprising treating the animal containment area with the treated animal litter composition of claim 21.

26. A method for increasing the storage life of an animal litter, the method comprising treating the animal litter with the composition of claim 1.